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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/811,662 | 03/29/2004 | James David Johnston | 1999-0104ACon | 2429 |

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| EXAMINER | |
|---|---|
| LERNER, MARTIN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2626 | |

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/811,662 | JOHNSTON ET AL. | |
| | Examiner | Art Unit | |
| | Martin Lerner | 2626 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *14 to 17 and 27 to 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14 to 17 and 27 to 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because it should reflect the elected invention as now claimed. Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 14 to 15, 27 to 28, and 31 to 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Herre ('888)* in view of *Theunis*.

Concerning independent claims 14, 27, and 31, *Herre ('888)* discloses a method, system, and computer instructions for coding of audio signals, comprising:

"transmitting information regarding a first filter" – prediction filter coefficients are quantized as required for transmission to a decoder as part of side information; the order of the prediction filter and information describing its filter coefficients are included in a bitstream transmitted to a decoder (column 7, lines 44 to 65: Figure 6); prediction filter coefficients are "information regarding a first filter";

"transmitting information regarding a second filter" – prediction filter coefficients are quantized as required for transmission to a decoder as part of side information; the order of the prediction filter and information describing its filter coefficients are included in a bitstream transmitted to a decoder (column 7, lines 44 to 65: Figure 6); implicitly, prediction filter coefficients change over time, from frame to frame or block to block; thus, prediction filter coefficients transmitted for a subsequent frame or block are "information regarding a second filter";

"transmitting a mask to indicate switching between the first filter [and the second filter] across the spectrum" – a "prediction flag" on or a "prediction flag" off ("a mask") is transmitted in a field of the bitstream as side information (column 7, lines 44 to 65: Figure 6); the object of the prediction flag is to is to provide a signal from the encoder to the decoder as to whether differential pulse code modulation (DPCM) or conventional pulse code modulation (PCM) is employed as an encoding method for a frame or block (column 4, lines 52 to 62); thus, a prediction flag is "a mask to indicate switching between" a first encoding method, differential pulse code modulation, represented by prediction filter coefficients, and a second encoding method, pulse code modulation; switching between the two encoding methods is "across the spectrum" because a prediction process may be performed over the entire frequency spectrum (i.e. for all spectral coefficients, or for only a portion of the spectrum (i.e. for a subset of the spectral coefficients) (column 6, line 65 to column 7, line 3).

Concerning independent claims 14, 27, and 31, the only element not clearly disclosed by *Herre ('888)* is whether the switching indicated by a prediction flag is

between a first filter and a second filter, or only between a first filter and pulse code modulation. *Herre ('888)* provides for switching of encoding techniques, where transmitted filter coefficients provide an inverse filter for decoding an audio signal, but there are no filter coefficients transmitted for decoding by pulse code modulation. However, *Theunis* teaches source coding by switching filter banks, where an output signal of a transmit switching means is multiplexed and transmitted from transmitter 2 to receiver 6. The switching signal is demultiplexed at receiver 6 to indicate an instant at which a synthesis filter bank 24 is switched. Additionally, *Theunis* notes that, in one embodiment, the switching signal can carry all new filter parameters, although it is more likely that the switching signal carries an index from a set of predetermined filter coefficients. (Column 4, Lines 47 to 61: Figure 1) The advantage is that by using time varying filter banks, the characteristics of the filter banks can be adapted to the input signal to be coded, resulting in improved coding properties. (Abstract; Column 1, Lines 58 to 65) Coders 10, 12 are arranged to obtain a bit rate reduction. (Column 4, Lines 38 to 47: Figure 1) It would have been obvious to one having ordinary skill in the art to switch between two filters in a source coder as taught by *Theunis* with a prediction flag for indicating an encoding technique of transmitted filter coefficients of *Herre ('888)* for a purpose of adapting characteristics of a filter bank to an input signal to be coded, resulting in improved coding properties.

Concerning claims 15, 28, and 32, *Herre ('888)* provides an analysis filterbank 12 for decomposing an input signal into spectral coefficients, where each spectral coefficient y(b, j) is associated with an analysis frequency or frequency range (column 4,

63 to column 5, line 6: Figure 1); each frequency or frequency range is "one of a plurality of bands" of a spectrum; similarly, *Theunis* discloses an analysis filter bank 8 to transform an input signal into a plurality N of sub-band signals (column 3, lines 58 to 60: Figure 1).

4. Claims 16 to 17, 29 to 30, and 33 to 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Herre ('888)* in view of *Theunis* as applied to claims 14, 27, and 31 above, and further in view of *Oikawa*.

Concerning claims 16, 29, and 33, *Herre ('888)* does not expressly disclose scale factors. However, *Herre ('888)* is directed to perceptual coding of an audio signal, and scale factors are commonly employed in perceptual coding of audio signals for bit allocation of bands that have more perceptually important information. Specifically, *Oikawa* teaches scale factors for encoding of spectral components of a digital audio signal. (Column 4, Lines 33 to 45: Figures 2 to 4) The object is to compress a digital audio signal to prevent quantizing noise from being heard when an input signal is highly tonal. (Abstract) It would have been obvious to one having ordinary skill in the art to provide for scale factors for encoding a digital audio signal as taught by *Oikawa* in an encoding technique of *Herre ('888)* for a purpose of preventing quantizing noise from being heard when an input signal is highly tonal.

Concerning claims 17, 30, and 34, *Herre ('888)* discloses a prediction flag ("a mask"), but does not say that the prediction flag includes one bit per band to indicate switching. However, it is commonly known that a flag comprises only one bit, because

a flag indicates a yes/no binary alternative, and one bit is the minimum information that would be required to represent a yes/no binary alternative. Thus, it would be an obvious expedient for a flag to be one bit. Moreover, *Oikawa* provides for separate quantization for each of a plurality of bands. (Figure 5) Thus, it would be an obvious expedient to transmit a flag, or "mask", of one bit for each of the quantizers to indicate differential quantization of each band.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

Matsuzawa et al. discloses switching between a plurality of filters to reduce noise (Figure 4).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ML
10/24/06

Martin Lerner
Examiner
Group Art Unit 2626